C.) Remarks.

All the claims remaining in the application have been carefully reviewed and amended, except for claims 14 and 20, to overcome the rejections under 35 U.S.C. § 102, 103 and 112. More particularly, dependent claims 5, 13, 17 and 18 have been amended to provide a proper antecedent basis for referenced structure used to define the added claimed subject matter and thereby comply with 35 U.S.C. § 112. Independent claims 1 and 21 have been carefully amended to incorporate structure and components making up the automotive instrument panel support beam of claim 1 and the contoured workpiece of claim 21 according the method of Applicants' invention. The claims dependent on claim 1 have also been amended to provide better clarity to the additional claimed subject matter.

The method of contouring a workpeice to produce an automobile instrument panel support beam and contoured workpiece is the elected subject matter for prosecution in the present application. Attention is respectfully directed to Applicants' specification at page 3, lines 9-11:

> "It is still another object of the present invention to provide a two step drawing operation using contour dies to produce an elongation and a contouring of unitary tubular metal workpiece for the manufacture of an automotive instrument panel support beam."

Additionally, the physical properties and configuration of the automotive instrument panel support beam (contoured workpeice) are believed patentable significant to the metal drawing operation claimed in each of claims 1 and 21 and discussed at page 3, line 18 – page 4, line 5 of Applicants' specification:

> "The present invention seeks to minimize the wall thickness and thus also the weight of the metal tubular structure manufactured to form an automotive instrument panel support beam or an automotive fuel tank filler tube. The selected tubular metal workpiece with a uniform diameter throughout the length thereof is subject to *metalworking operation selected to*

> *avoid the disadvantages arising out of the use of the rotary swaging and cold pilger processes* by drawing the tubular metal blank only partly through a contoured die or a succession of contour dies. The drawing process operates to reduce the diameter of the metal tubular blank *which greatly reduces increases to the tubular walls undergoing the reduction to the diameter particularly as compared to the unwanted thickness increases to the tubular walls when acted on by the rotary swaging* or the cold pilger processes."(emphasis added)

Applicants' claim 1 recites a method for contouring a workpiece for the manufacture of an automotive instrument panel support beam of which a first constituent of length of the starting metal blank --"is selected as part of the --- starting metal blank having a uniform wall thickness along the length thereof and a constant outside dimension substantially the same outside dimension as desired for producing a drivers side support beam portion". Thus the driver side support beam must also have a uniform internal dimension. Similarly, the passenger side support beam portion is produced according to the recitations of claim 1 by:

> "-- using said gripper for drawing said starting metal blank only partly through a contoured die or only partly through each one of a succession of contoured dies to reduce the outside dimension essentially only along a part of said starting metal blank remaining between said driver side support beam portion and said end portion without producing an appreciable increase to said uniform wall thickness for producing a second constituent of length in the manufacture of an automotive instrument panel support beam."

Similarly, applicants' claim 21 recites a method for contouring a workpiece for an article of manufacture of which a first constituent of length of the starting metal blank --"is selected as part of the --- starting metal blank having a uniform wall thickness along the length thereof and a constant outside dimension substantially the same outside dimension as desired for producing a first constituent of length desired for a contoured workpiece,. Thus the first constituent of length must also have a

uniform internal dimension. Similarly, the passenger side support beam portion is produced according to the recitations of claim 1 by:

> "drawing said starting metal blank only partly through a contoured die or only partly through each one of a succession of contoured dies to reduce the outside dimension essentially only along a part of said starting metal tube without producing an appreciable increase to the uniform wall thickness for producing a desired dimension along a second constituent length desired for said contoured workpiece; working the metal of said starting metal blank concurrently with said step of drawing to form said second constituent of length in said starting metal blank; and
>
> cutting an increment of length essentially comprised of said end portion from said starting metal blank to define a desired aggregate length for said contoured workpiece."

Applicants respectfully point out that the Meredith '576 reference teaches away from the Applicants' claimed invention by the required step of conventional rotary swaging operation, as described at Column 3, lines 47- 63, reproduced here for convenience:

> "After all of the drawing steps are completed, *the metal shaft is again subjected to a conventional rotary swaging operation, this time performed on the stepped portion 25 of the shank portion of the shaft to remove the steps 26-30 created in the sink drawing operation and thus form a smooth taper 37 over that length of the shaft as shown in FIG. 2D. The swaging operation also serves to blend the taper 37 with the end of the shaft 24 that was rotary swaged to a cylindrical shape in the first step.* The rotary swaging operation may require two or three passes and generally will be performed using long swaging dies as are known in the art. For a titanium alloy shaft, the length of the taper 38 is preferably around 25.8" which would require two or three swaging operations using conventional 12"-15" swaging dies." (Emphasis added)

It is improper hindsight use of the Applicants' teachings to pick and choose from a prior art reference only bites and pieces to support a contention of a lack of patentable novelty. It is too well settled to require citation of authority that the scope and content of the disclosure by a prior art reference must be considered to ascertain the teaching to one skilled in the art. It is submitted that one cannot properly ignore the Meredith '576 intent of producing a shaft for a golf club: "A further object of the

invention is to provide a shaft having *a reinforced tip portion due to increased wall thickness*."(Meredith, Column 1, lines 66-68) The reinforced tip is a part of the golf club shaft. Attention is also directed to the detailed description in the Meredith '576 reference at Column 2, line 65 – Column 3, line 9:

> "-- In the first step, the shaft is subjected to a conventional rotary swaging operation so that the wall thickness 22 at one end 12 along a certain length 23, e.g., about 6 inches, is increased with respect to the wall thickness 20 on the remainder of the shaft (see FIG. 2B). As a result, a cylindrical tip portion 24 is formed that serves at least two purposes. First, a clamping surface is provided to which a drawing tool can be attached for performing draw passes as discussed below. *Second, the shaft now has a portion that is strengthened with respect to the remainder of the shaft due to the increased wall thickness which is highly desirable in certain uses for shafts, e.g. use in a golf club.*"
> (Emphases added)

And a further objective, foreign to the Applicants' objective, is identified as:

"A further object of the invention is to provide a shaft having *constant wall thickness over at least a tapered shank portion of a shaft*."( Meredith, Column 2, lines 1-3)

All of Applicants' claims are explicit to the contrary by reciting that each of the drivers side support beam portion (or a first portion) comprised of a first constituent of length of the starting metal blank having a uniform wall thickness and a constant outside dimension and a passenger side support beam portion (or a second portion) by using said gripper for drawing said starting metal blank only partly through a contoured die or only partly through each one of a succession of contoured dies to reduce the outside dimension essentially only along a part of said starting metal blank remaining between said driver side support beam portion and said end portion without producing an appreciable increase to said uniform wall thickness for producing a second constituent of length in the manufacture of an automotive instrument panel support beam (or contoured workpeice).

When Applicants' claims are read in light of applicants' teaching that a *tapered configuration* is created to the outside wall dimension is not embrace within

the scope of the claims. The claims require that the starting metal blank is only partly drawn through a contoured die or only partly through each one of a succession of contoured dies to reduce the outside dimension.

Rotary swaging the length of the metal blank is one of the particular metal working operation the Applicant seeks to avoid but is specifically taught as part of the process by the Meredith '576 reference for producing a continually tapering shaft for a golf club. The Meredith '576 reference was relied on to support a rejection of claim 1-2, 16 and 21 as anticipated and the Staples '016 reference in view of Meredith was relied on to support the rejection of claims 1-3, 5-9, 17 and 21 as obvious. In each grounds of rejection , the observation was made in reference to Meredith that ---it should be noted that lacking any clear structurally distinguishing features the tube shown in figures 2C and 2D (figure 1 was reference in the rejection under section 103) is read onto 'an automotive panel support beam'. Claims 1 and 21 as amended are submitted to provide such structural distinctive features.

The Meredith reference discloses at column 3, lines 10-37:

> "In the next series of steps of FIG. 1, a drawing tool (not shown) is clamped to the swaged end 24 of the shaft in a conventional manner and sink drawing is performed on a shank portion 25 of the metal shaft adjacent the swaged portion 24. The sink drawing includes several draw passes and each successive draw uses a draw die having a smaller diameter than that of the draw die used in the immediately preceding draw. *The successive draws form a stepped contour on the outer periphery of the metal shaft having steps of increasing outer diameters 26-30 and axial lengths 31-35 as shown in FIG. 2C.* The step with the smallest diameter 26 includes that portion 24 of the shaft that was initially swaged. *The outer diameters 26-30 and the axial lengths 31-35 will vary according to desired "flex" and "flex points" for a particular shaft.* It should be noted that one draw step can include the simultaneous use of two dies (of different diameter) and thus reduce the number of draws required while yet still providing the desired number of steps. Preferably, for golf club shafts made from titanium alloy and designed to have a midway "flex point", the outer diameters of each of the steps 26-30 are about 0.375", 0.420", 0.460", 0.507" and 0.552", respectively, while the axial lengths 31-35 of steps 26-30 are 7.50", 4.5", 4.0", 4.75" and 4.25", respectively. The

> undrawn and unswaged portion 36 of the shaft remains at the shank portion of the original shaft diameter 21."

The Meredith reference, taken as a whole, teaches that the stepped contour on the outer periphery of the metal shaft is eliminated by the rotary swaging operation as noted supra at Column 3, lines 47- 63. Moreover the essential nature of the rotary swaging operation is explained at Column 3, line 63- column 4, line 23 also repeated here for convince:

> "After rotary swaging the steps, the segment of the cylindrical tip portion 24 of the shaft that has served as a clamping surface for the drawing tool is cut-off. The forces exerted on the metal on that segment will have caused scuffing and pitting thus rendering an unusable surface. It should be noted that only that segment effected by the clamped tool is removed and not the entire tip portion. *Thus, a swaged cylindrical portion 24 of increased wall thickness 22 remains at the end of the shaft.*
>
> The shaft resulting from this method thus has a wall of substantially constant thickness 39 along length 40 of a shank portion the shaft. Preferably, for a golf club shaft of titanium alloy, this thickness is about 0.023" over a length of about 37.9". For the remaining end portion 41 of the shaft as seen in FIG. 2D, the thickness 22 remains substantially greater than the thickness of the rest of the shaft, this being due to the initial swaging operation. The length 41 of this portion of increased thickness 24 is preferably about 7". This thickness 22 is constant along a substantial portion of length 41 and is preferably about 0.040" maximum. As a result, the end product is a shaft having a wall of constant thickness over a shank portion of the shaft and a wall of increased thickness at the cylindrical tip of the shaft where a golf club head is attached. Accordingly, no further reinforcement, for example, by a reinforcing insert, is necessary."

Applicants' claim 21 as now amended additionally recites:

> "working the metal of said starting metal blank concurrently with said step of drawing to form said second constituent of length in said starting metal blank; and
>
> cutting an increment of length essentially comprised of said end portion from said starting metal blank to define a desired aggregate length for said contoured workpiece."

The additional feature of "working the metal " in claim 21 and also recited in original claim 3 was contended to be shown in Figure 3 of the Staples reference. The

contention is respectfully traversed. The teaching of the use of the "shaping mandrel 21" is terse. However, it is clear that the mandrel 21 is used to form the reverse curve in the neck portion 12 having radii R and r by using a draw bench pr press to withdraw the mandrel 20 and by frictional contact with the newly drawn tube in the reverse direction as shown in Figure 4.

The function of the shaping mandrel 21 in the process of drawing the tube in the die 30 is not described but in figure 3, the shaping mandrel 21 is set back from a confronting relation with the shaping surface of the die. This suggests that the shaping mandrel 21 is not used in the drawing operation for forming the shank 10. The two mandrels 20 and 21 are used for two different drawing operations. The Staples seeks to produce tubes for condensers by drawing operations carried out in each of opposite directions. This reference is specifically concerned with producing a reverse curve in a neck portion 12 with radii R and r at the junction between enlarged end 11 and long shank 10 as shown in Figure 1 and described in Page 1, lines 43 – 55. It is improper hindsight to read applicants' teaching into the Staples disclosure.

The remarks given supra are submitted to also distinguish the additional features recited in dependent claims 2-9 and 13-20 from the cited prior art.

It is now believed the application is in condition for allowance and such action is earnestly solicited.

Respectfully submitted,

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